CLAIMS

1. A method for measuring non-invasively a blood pressure of a patient,

characterized in that the method comprises the steps of:

determining (1603) a mechanical heart beat starting time point from an impedance cardiogram signal,

detecting (1605) a heart beat pulse arrival time at a peripheral site of the patient,

calculating (1607) a pulse wave transit time from the heart to the peripheral site by utilizing said mechanical starting point of the heart beat and said heart beat pulse arrival time,

calculating (1609) an estimate of the blood pressure of the patient from said pulse wave transit time.

2. A method according to claim 1, characterized in that the method comprises a step of

calibrating (1611) the blood pressure calculation by oscillometric cuff (Figure 4, 404) measurement of the blood pressure of the patient.

3. A method according to claim 2, characterized in that the method comprises the step of

performing successively (1613) the step of calibrating the blood pressure calculation by oscillometric cuff (404) measurement.

4. A method according to claim 3, characterized in that said step of calibrating the blood pressure calculation is improved incrementally on each cuff (404) inflation cycle (1613).

5. A method according to claim 1, characterized in that the method comprises the step of

determining (1615) the heart beat pulse arrival time at the peripheral site of the patient by using peripheral site plethysmographic sensor.

6. A method according to claim 1 or 5, characterized in that the method comprises

a step of measuring the peripheral site plethysmogram with an optical reflectance means.

7. A method according to claim 1 or 5, characterized in that the method comprises

a step of correcting a reflected wave component of the peripheral site plethysmogram in response to a change in the plethysmogram amplitude.

8. A method according to claim 1 characterized in that the method (Figure 5) comprises the steps of

measuring the heart beat to peripheral pulse beat transit time start point by measuring the ECG QRS-complex, and

adding correction to the QRS-complex signal by averaging QRS to ICG waveform timing point.

9. A system (Figure 6) for measuring non-invasively the blood pressure of a patient characterized in that the system (Figure 6) comprises:

an impedance cardiogram (609) for determining the mechanical heart beat starting time point of a patient,

a peripheral site sensor (603) for determining the heart beat pulse arrival time at the peripheral site of the patient,

a first calculator (604) for calculating the pulse wave transit time from the heart to the peripheral site by utilizing said mechanical starting point of the heart beat and said heart beat pulse arrival time at the peripheral site of the patient,

a second calculator (605) for calculating the blood pressure of the patient from said pulse wave transit time.

10. A system (Figure 6) according to claim 9 for measuring non-invasively the blood pressure of a patient characterized in that the system comprises:

an oscillometric cuff (Figure 4, 404) for calibrating the blood pressure calculation by measuring the blood pressure of the patient.

11. A system (Figure 6) according to claim 9 for measuring non-invasively the blood pressure of a patient characterized in that the oscillometric cuff (404)is adapted to perform the calibration of the blood pressure calculation by successive (1613) oscillometric cuff measurements.

12. A system (Figure 6) according to claims 9 or 10 for measuring non-invasively the blood pressure of a patient characterized in that the calibration of the blood pressure calculation is improved incrementally on each cuff (Figure 4, 404) inflation cycle.

13. A system (Figure 6) according to claim 9 for measuring non-invasively the blood pressure of a patient characterized in that said peripheral site sensor (Figure 4, 404) for determining the heart beat pulse arrival time at the peripheral site of the patient is a plethysmographic sensor.

14. A system (Figure 6) according to claim 11 for measuring non-invasively the blood pressure of a patient characterized in that said plethysmographic sensor (404) is an optical reflectance means.

15. A system (Figure 6) according to claim 9 or 13 for measuring non-invasively the blood pressure of a patient

characterized in that said peripheral site plethysmogram (Figure 4, 404) is arranged to correct a reflected wave component of the peripheral site plethysmogram in response to a change in plethysmogram amplitude.

16. A system (Figure 6, Figure 11) according to claim 9 for measuring non-invasively the blood pressure of a patient characterized in that

said system is arranged to measure the beat to beat transit time start point by measuring the ECG QSR-complex, and that

said system is arranged to add correction to the QRS-complex signal by averaging QRS to ICG waveform timing point.